A.2.2 SWMA 2

Description

SWMA 2 encompasses the following three SWMUs:

- SWMU 28: Reactor Burial;
- SWMU 38: North Field Slop Pond; and
- SWMU 30: Short Term Storage Area

As depicted on Figure A.2.2, Chevron grouped these SWMUs together during the 1st-Phase RFI, because they are either adjacent to each other and/or overlap each other.

SWMU 28 - Reactor Burial

This unit is located in the southern portion of the Short Term Storage Area (SWMU 30) and consists of a Phthalic Anhydride (P/A) Plant reactor that was buried in 1963. The reactor was estimated to be 14 feet in diameter, 16 feet long, and the invert was located at approximately 18 feet bgs based on available historical documentation. Pre-RFI trenching conducted in 1991 confirmed the location and depth to the top of the P/A reactor.

SWMU 38 - North Field Slop Pond

This unit is located in the northwest section of the North Field and partially overlaps the northern end of SWMU 30. SWMU 38 was likely an open earthen impoundment that was identified on aerial photographs dated from 1947 to 1954. The types of waste SWMU 38 may have contained is unknown. The original unit was an approximate ellipse, 75 feet by 250 feet. However, the investigation area was expanded to a 250 foot by 125 foot rectangle to account for irregularities in the shape of the unit. This unit was reportedly cleaned out and backfilled.

SWMU 30 - Short Term Storage Area

This unit is located along the western edge of the North Field and is used for the temporary (less than 90 days) storage of hazardous and potentially hazardous waste. Potential releases from SWMU 30 might include small volume leaks and spills from the 55-gallon drums and dumpsters.

As summarized on Table A.2.2, 19 borings, 26 soil samples, samples from two groundwater monitoring wells and eight hydropunch samples have been used to characterize this SWMA. Relevant data from SWMA 1 and SWMU 53 are also shown on Table A.2.2 for delineation purposes.

A total of 15 soil samples were collected from six borings during the 1st-Phase RFI and analyzed for Skinner's List VOCs, SVOCs and metals[1]. Three samples were collected from each of four borings. The fifth boring, SB0124, had two samples and the sixth boring, SB0130, had one sample. Four of the borings (SB0111, SB0114, SB0127 and SB0128) were installed in the vicinity of SWMU 28 and two borings (SB0124 and SB0130) were installed in the SWMU 38 area.

During the Full RFI, 11 soil samples were collected from five borings to further characterize this SWMA. Of these, four samples were analyzed for PAHs; six were analyzed for TCL VOCs and SVOCs, TAL metals and TOL[2]; and one sample, collected from the fill material within SWMA 2, was analyzed for physical characteristics[3] and SPLP metals.

Soils

Stained soils were observed in borings installed within the fill unit throughout SWMA 2. The following table summarizes the number of samples where soil delineation criteria were exceeded within SWMA 2:

Constituents of Concern	Surface soils (0 to 2 ft) (9 samples)	Fill Material (>2 ft) (10 samples)	Native Soils (7 samples)	Totals (26 samples)
Benzene	1/7	0/7	0/7	1/21
Other VOCs	0/7	0/7	0/7	0/21
Benzo(a)pyrene	2/9	5/10	1/7	8/26
Other PAHs	2/9	5/10	1/7	8/26
Antimony	1/7	0/7	0/7	1/21

Surface soils (0 to 2 feet bgs)

Black staining was observed within the surface soils at two borings (SB0124 and SB0127) within SWMA 2. A third boring contained catalyst beads in the surface soil. Only three of the nine surface soil samples collected within SWMA 2 contained COCs above the soil delineation criteria.

One of the seven surface soil samples submitted for VOC analysis contained benzene (1.5 mg/kg) slightly above the soil delineation criteria. Two of the nine surface soil samples collected from SWMA 2 contained exceedances of benzo(a)pyrene and several other

[1]Note that although many of the 1st-Phase sample identification numbers do not appear to correspond to the boring numbers in this area, the samples and borings are correctly correlated in the ensuing discussion and on Table A.2.2.

[2]Although there are no TEL sites at SWMA 2, several samples were inadvertently analyzed for TOL.

[3] Physical characteristics specified in Appendix A, Task IV of Module III of the HWSA Permit included saturated and unsaturated permeability tests, moisture content, relative permeability, bulk density, porosity, soil sorptive capacity, CEC, TOC, pH, Eh and grain size distribution.

PAHs. The surface soil sample from boring SB0127 (sample ID SB0119SA) was the only sample from this SWMA to contain a metal (antimony at 19 mg/kg) above the soil delineation criteria.

Fill Materials (>2 feet bgs)

The lithologic descriptions on the boring logs indicate that visual evidence of dark or black staining was present in the fill material at six of the 11 borings installed within this SWMA, particularly within SWMU 28 and SWMU 38. However, measurable NAPL has not been detected in any of the monitoring wells or hydropunches at this SWMA. Catalyst beads were observed in two borings (SB0124 and SB0130), both located within SWMU 38. These two borings also contained exceedances of benzene and/or SVOCs/PAHs above the delineation criteria. The thickness of the fill layer within SWMA 2 ranges from approximately four feet (SB0130) to 16.0 feet. The fill layer in the vicinity of SWMU 38 is generally shallow whereas the fill layer in the vicinity of the reactor burial (SWMU 28) is much deeper (e.g., 16 feet thick in this area).

As shown on the table above, benzo(a)pyrene and several other PAHs were detected in over half (six out of 10) of the fill unit soil samples from SWMA 2. Benzene (1.5 mg/kg) was detected in two samples from SB0124 (SB0126SA and SB0124SF). However, as SB0124SF was collected from the saturated zone, the IGWSCC (1 mg/kg) is not applicable, and the concentration is below the RDCSCC for benzene (3 mg/kg) where benzene exceeded the soil delineation criteria in the surface soil sample. Benzo(a)pyrene was detected above delineation criteria at all locations where other PAHs were detected above the applicable soil delineation criteria. Where data are available, the PAH exceedances are localized in the fill or just below; therefore vertical delineation was determined to be the native material in general. No exceedances of metals (or TOL) above the soil delineation criteria were detected in any sample collected from the subsurface fill layer within SWMA 2.

The SPLP sample from MW114 (S0761C1) contained 6.68 mg/L of naturally-occurring aluminum and 7.77 mg/L of naturally-occurring iron, which exceed the applicable criteria for SPLP aluminum (2.2 mg/L) and SPLP iron (3.3 mg/L), respectively[4]. No other metals were detected above applicable SPLP criteria in this sample. Therefore, the soils are not a source of metal impacts to groundwater.

Native Material

A clay/sand layer underlies the fill material in area of SWMA 2 at depths ranging from approximately four to 16 ft bgs. Benzo(a)pyrene (3.24. mg/kg) and several other PAHs were detected above soil delineation criteria in only one of the native soil samples (S0760C3). This sample was collected immediately below the fill layer (5 to 5.5 feet bgs); however, neither the surface soil sample (one to two feet bgs) nor the deeper soil sample (S0760D3, collected from 7 to 7.5 ft bgs) had any exceedances. Therefore, there

[4]Based on the groundwater criterion for aluminum (200 µg/L), DAF = 11, and for iron (300 µg/L), DAF = 11.

is a clean soil barrier covering this location and vertical delineation of impacted soils is at 7 feet bgs. In general, vertical delineation of PAH exceedances were demonstrated at the top of the native soil layer.

As discussed further in Section 6 of the RFI Report, lateral delineation of selected COCs has been completed on a site-wide basis for each Yard. The delineation of these COCs is depicted graphically on the figures provided in Section 6.

Groundwater

MW-115 is a deep monitoring well that was specifically installed to evaluate whether the buried reactor is impacting groundwater. However, recent groundwater samples collected in 2003 from two wells (MW-114 and MW-115) installed within SWMA 2 showed no exceedances of VOCs, SVOCs or metals above the groundwater delineation criteria. Earlier hydropunch samples from SWMA 2 contained no COCs other than metals, which are likely attributable to the sample collection methods and not representative of groundwater conditions within this SWMA.

Summary

Benzo(a)pyrene and several other PAHs were present above soil delineation criteria in many samples from SWMA 2. Benzene was detected in only one sample above the applicable soil delineation criteria. Antimony was the only metal detected (in one sample) above the soil delineation criteria. Soil impacts are found almost entirely within the fill layer, which also exhibits widespread evidence of stained soils. Based on the results of the surface soil samples, surface soil in the SWMA 2 vicinity appears to be most impacted in the areas near the North Field Slop Pond and the Reactor Burial. The PAH exceedances are similar to levels associated with fill, although they may also be indicative of remnants of sludges from the Slop Pond, but the unit itself is no longer there.

Sample results indicate that neither soil nor groundwater has been impacted by the buried reactor. COCs have not been detected above applicable groundwater delineation criteria in groundwater samples from SWMA 2.

Impacted soils from the fill unit within SWMA 2 will be included in the CMS for further evaluation. Institutional controls/engineered barriers for site-related impacted soils from the fill unit within SWMA 2 will be considered in the CMS. No further evaluation of groundwater in the vicinity of SWMA 2 is planned.